

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): A rubber composition for a tire tread comprising 10-250 parts by weight of a carbon black per 100 parts by weight of a rubber component, in which the said carbon black is produced in a carbon black production step using a production furnace wherein a combustion zone, a reaction zone and a reaction stop zone are coaxially connected to each other and including a step of producing a high-temperature combustion gas through the combustion of hydrocarbon fuel in the combustion zone, a step of spraying a starting hydrocarbon into the high-temperature combustion gas flow in the reaction zone to convert the starting hydrocarbon into carbon black through partial combustion or thermal decomposition reaction and a step of quenching the high-temperature combustion gas flow with a quenching medium in the reaction stop zone to complete the reaction, under conditions satisfying the following relational equations (1) and (2):

$$2.00 \leq \alpha \leq 9.00 \dots (1)$$

$$-2.5 x \alpha + 85.0 \leq \beta \leq 90.0 \dots (2)$$

when a residence time from the introduction of the starting hydrocarbon into the high-temperature combustion gas flow to the introduction of the quenching medium is t_1 (sec), an average reaction temperature for such a time is T_1 (°C), a residence time from the introduction of the quenching medium to the enter of a reaction gas flow into the reaction stop zone is t_2 (sec), an average reaction temperature for such a time is T_2 (°C), $\alpha = t_1 x T_1$ and $\beta = t_2 x T_2$,

wherein the carbon black has a hydrogen desorption ratio $> 0.260 - 6.25 \times 10^{-4} \times \text{CTAB}$ (wt%), a toluene tinting permeability of not less than 90% and a cetyltrimethylammonium bromide adsorption specific surface area (CTAB) of 111-200 m²/g, and the hydrogen desorption ratio of the carbon black is not less than 0.20%.

2. (original): A rubber composition for a tire tread according to claim 1, which is compounded with the carbon black produced in the carbon black production step that the α value and the β value satisfy the following relational equations (3) and (4):

$$3.00 \leq \alpha \leq 8.00 \dots \dots (3)$$

$$-2.5 \times \alpha + 85.0 \leq \beta \leq 86.0 \dots \dots (4)$$

3. (previously presented): A rubber composition for a tire tread according to claim 1, which is compounded with the carbon black produced in the carbon black production step further comprising a step of introducing a gaseous body in the reaction zone or the reaction stop zone.

4. (previously presented): A rubber composition for a tire tread according to claim 1, which is compounded with the carbon black having a dibutyl phthalate absorption (DBP) of 40-250 ml/100 g, a compressed DBP absorption (24M4DBP) of 35-220 ml/100 g and a cetyltrimethylammonium bromide adsorption specific surface area (CTAB) of 111-200 m²/g.

5. (previously presented): A rubber composition for a tire tread according to claim 4, which is compounded with the carbon black having a dibutyl phthalate absorption (DBP) of 95-220 ml/100 g and a compressed DBP absorption (24M4DBP) of 90-200 ml/100 g.

6. (previously presented): A rubber composition for a tire tread according to claim 4, which is compounded with the carbon black having a tinting strength (TINT) $> 0.363 \times CTAB + 71.792$.

7. (previously presented): A rubber composition for a tire tread according to claim 4, which is compounded with the carbon black having a tinting strength (TINT) $< 0.363 \times CTAB + 71.792$ and (TINT) > 50 .

8. (canceled).

9. (canceled).

10. (previously presented): A rubber composition for a tire tread according to claim 1, which is compounded with the carbon black having an extraction amount with monochlorobenzene of not more than 0.15%.

11. (previously presented): A pneumatic tire comprising a rubber composition for a tire tread as claimed in claim 1 in a tread portion.